Cost Effectiveness of Fuel Break Treatments in Cheatgrass-Dominated Landscapes

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Cheatgrass (*Bromus tectorum*), an invasive annual grass, facilitates frequent, large fires in sagebrush-grassland and other communities in the Great Basin. Federal wildland fire policy recommends research and development on, and economic analysis of, landscape-scale fuel reduction alternatives to reduce the threat of catastrophic wildfires. Our objective was to compare the cost effectiveness of using targeted cattle grazing and Plateau® herbicide to create fuel breaks on cheatgrass-dominated landscapes. Fuel characteristics from a cattle grazing study near McDermitt, Nevada, and a Plateau® study near Boise, Idaho, were used to parameterize a dry climate grass fuel model in BehavePlus 3.0 and simulate reductions in wildfire flame length and rate of spread. Cost-effectiveness analysis was used to compare the relative costs and outcomes of single and multiple applications of the two fuel reduction treatments for high, moderate and low fuel loads of cheatgrass. Cattle grazing and Plateau® had similar reductions in flame length and rate of spread. A single application of cattle grazing had high initial costs (primarily fencing), and it was only more cost effective than a single application of Plateau® when these costs were offset by cattle gains at a high fuel load (forage biomass). When applied every other year over a 5-year period, cattle grazing at high and moderate fuel loads was more cost effective than Plateau®, due in part to herbicide re-treatment costs. Plateau® was more cost effective as a fuel reduction treatment when low fuel loads did not provide enough forage for cattle gains to offset grazing management costs.

2009. 62nd Society for Range Management Annual Meeting. Paper No. 1030-23.